

Sub  
Apparatus

1. A method of controlling a chemical mechanical polishing system, comprising:  
receiving an inner tolerance, an outer tolerance and a specification tolerance limit;  
receiving user input selecting one of the inner tolerance and the outer tolerance;  
receiving user input selecting a polishing machine procedure for the selected tolerance;  
polishing a first substrate with the chemical mechanical polishing system;  
measuring a thickness of at least one layer in the substrate at an in-line metrology station; and  
if the measured thickness exceeds the selected tolerance, performing the selected procedure.

2. The method of claim 1, wherein the selected procedure includes adjusting a polishing time of a second substrate from the same cassette as the first substrate.

3. The method of claim 1, wherein the selected procedure includes adjusting a polishing time of a second substrate from a different cassette from the first substrate.

4. The method of claim 1, wherein the selected procedure includes displaying a warning message.

5. The method of claim 1, wherein the selected procedure includes generating a gating substrate in the next cassette.

6. A method of chemical mechanical polishing, comprising:  
polishing a first substrate in a lot at a polishing station of a chemical mechanical polishing apparatus that includes an in-line metrology station;  
measuring a thickness of at least one layer in the first substrate at the in-line metrology station; and  
adjusting a polishing parameter based on the measurement of the first substrate;  
and

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polishing a second substrate at the polishing station with the adjusted polishing parameter

7. The method of claim 6, wherein the thickness of the at least one layer is measured while a third substrate is being polished, and the second substrate is polished after the third substrate.

8. The method of claim 6, wherein the polishing parameter is adjusted if the measured thickness exceeds a tolerance limit.

9. The method of claim 8, wherein the tolerance limit is entered by a user.

10. The method of claim 6, wherein the polishing parameter is a polishing time.

11. A method of chemical mechanical polishing, comprising:  
receiving a cassette with a plurality of substrates at a chemical mechanical polishing apparatus;

*search* polishing a gating substrate from the *search* cassette;

*search* measuring a thickness of at least one layer in the gating substrate at an in-line metrology station;

determining whether the measured thickness exceeds a tolerance; *search*

if the measured thickness is within the tolerance, commencing polishing of the remainder of substrates from the cassette; and

if the measured thickness is outside the tolerance, repolishing the gating substrate. *search*

12. The method of claim 11, wherein polishing of the remainder of the substrates includes polishing a monitor substrate and measuring a thickness of at least one layer in the monitor substrate at the in-line metrology station.

13. The method of claim 12, further comprising adjusting a polishing parameter based on the measured thickness of the at least one layer in the monitor substrate.

14. The method of claim 13, further comprising polishing a first regular substrate before polishing the monitor substrate and not directing the first regular substrate to the in-line metrology station.

15. The method of claim 14, further comprising polishing a second regular substrate after polishing the monitor substrate using the adjusted polishing parameter and not directing the second regular substrate to the in-line metrology station.

16. A method of chemical mechanical polishing, comprising:  
receiving a cassette with a plurality of substrates at a chemical mechanical polishing apparatus;

receiving an electronic file containing a wafer type for each substrate in the cassette at a controller for the polishing apparatus;

for each substrate, determining the wafer type;

if the wafer type is a first type, then polishing the substrate, measuring a thickness of at least one layer of the substrate at an in-line metrology station, and not permitting further substrates from the cassette to be polished if the thickness exceeds a first tolerance;

if the wafer type is a second type, then polishing the substrate, measuring a thickness of at least one layer of the substrate at the in-line metrology station, and adjusting a polishing parameter for future substrates from the cassette; and

if the wafer type is a third type, then polishing the substrate and not directing the substrate to the in-line metrology station.